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**D E C I S I O N**  
**of 21 July 2004**

**Case Number:** T 0877/00 - 3.4.2

**Application Number:** 93924759.9

**Publication Number:** 0669013

**IPC:** G03B 17/04

**Language of the proceedings:** EN

**Title of invention:**  
Bellows for optical equipment

**Applicant:**  
PANAVISION EUROPE LIMITED

**Opponent:**  
-

**Headword:**  
-

**Relevant legal provisions:**  
EPC Art.84

**Keyword:**  
"Support (yes)"

**Decisions cited:**  
T 0409/91, T 0939/92, T 0068/85

**Catchword:**  
-



Case Number: T 0877/00 - 3.4.2

**D E C I S I O N**  
of the Technical Board of Appeal 3.4.2  
of 21 July 2004

**Appellant:** PANAVISION EUROPE LIMITED  
The Old House  
Shepperton Studios  
Studio Road  
Shepperton  
Middlesex TW17 0QD (GB)

**Representative:** Moir, Michael Christopher  
Mathys & Squire  
100 Gray's Inn Road  
London WC1X 8AL (GB)

**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office posted 27 March 2000  
refusing European application No. 93924759.9  
pursuant to Article 97(1) EPC.

**Composition of the Board:**

**Chairman:** A. G. Klein  
**Members:** M. A. Rayner  
J. H. P. Willems

## Summary of Facts and Submissions

I. The present appeal is against the decision of the examining division refusing European patent application 93 924 759.9 (=WO 94/11780). The patent application relates to a bellows for optical equipment.

### II. Decision under Appeal

The examining division saw a clear and unambiguous basis of disclosure in the patent application for the object of obtaining a bellows which, after adjustment, maintains its adjusted position and for the fact that the further layer of load bearing material acts as a plastic hinge at the folds (see point 1.1.4, last paragraph of the reasons for the decision). The division was also of the view that the stiffness of layers of load bearing material in general and of aluminium sheets which are typically 75 microns thick in particular can be positively verified by tests known to persons skilled in the art, these tests not requiring undue experimentation (see point 1.1.5, last sentence, first paragraph of the reasons for the decision).

However, the examining division considered bellows with provision of a specific load bearing material for the purpose of providing support to be a basic element of the solution to disadvantages of prior art described in the patent application (see point 1.1.4, last paragraph of the reasons for the decision). The division referred to a further layer of load-bearing material disclosed in the patent application which is (i) continuous along the length of each fold or (ii) perforated at intervals

along the line of each fold to provide a plurality of connections distributed along the length of the fold between axially adjacent pleats. In particular, the division referred to the further layer of load-bearing material having the stiffness of aluminium sheets of (in feature (ii) specifying "at least") typically 75 microns thickness. In the absence of such features, the subject matter of claims 1 and 2 before the division would not achieve the object of the invention. There is furthermore no unambiguous disclosure that the invention was aiming at adjustable bellows which are plastically deformable at the folds isolated from the desire to form self-supporting bellows for a specific purpose, nor that the further layer of load bearing material, upon axial adjustment of the bellows, is the only measure maintaining the bellows in its adjusted configuration without external support or restraint.

The examining division reached the view that claims 1 and 2 of the main request before it and also claim 1 of the auxiliary request were not supported by the description, thus not complying with Article 84 EPC. The claims were thus not allowable. In support of its reasoning, the division referred to decisions T 409/91 (points 3.3 and 3.5 of the reasons) concerning in that board's judgement a fuel oil which must containing additives (see point 3.2), T 939/92 (point 2.4.2 of the reasons and headnote) involving whether a technical effect is obtained by all the chemical compounds covered by the claims, Guidelines Section C III, 4.7 and 6.5 and T 68/85.

III. Submissions of the Appellant

It is apparent, as agreed by the examining division, that the object of the invention is to provide a bellows which, after adjustment, maintains its adjusted position without external support or restraint. The independent claims concern features related to the object to be achieved.

In the application, there is an explicit disclosure of: a further layer of aluminium which in a lens hood is typically 75 micrometers thick (see page 6, last paragraph); a further layer of load-bearing material which is capable of providing adequate support and of deforming plastically at the folds (see page 2, lines 5 to 13); this may be material not consisting of aluminium of a thickness of 75 micrometers (see page 7, last paragraph); and a further layer of load-bearing material perforated at intervals along the line of each fold, to provide a plurality of connections between the material in axially adjacent pleats, said connections being distributed along the length of the fold (see page 8 and Claim 4). There is also disclosure of the broader principle, namely the use of a further layer of a load-bearing material which stiffens the folds whereby upon axial adjustment the bellows retains its configuration without external support or restraint (see page 2, first full paragraph). It is further stated in the application as filed (see page 3, last two lines) that the invention is described by way of example only, i.e. the explicit features referred to above are features of specific examples of a bellows and not a definition of the invention.

The original application documents do not state that if materials other than aluminium sheets of 75 micrometers thickness are used that these other materials should have the stiffness of an aluminium sheet of 75 micrometers thickness. It is merely stated that these other materials need to be capable of providing adequate support and of deforming plastically at the corrugation hinges. For different applications different stiffness will be required. For example, whilst the stiffness provided by an aluminium sheet of 75 micrometers may be suitable for manufacturing a lens hood for a standard size lens, a greater stiffness may be required for the manufacture of a lens hood for a particularly large lens and a much smaller stiffness for the manufacture of a lens hood for a particularly small lens. The choice of material and thickness will lie with the manufacturer and one skilled in the art will be taught by the disclosure of the present application that this choice should be guided by two closely related requirements (see page 7, last paragraph), namely the provision of adequate support and the capability of deforming plastically at the corrugation hinges, i.e. absence of excessive rigidity. It is the capability of deforming plastically which stiffens the hinge and maintains the shape of the bellows, i.e. provides adequate support. Even if the bellows is supported at both ends, this does not mean that it is not self-supporting in itself.

Therefore, the limitation required by the examining division are not necessary to meet the requirement of support specified in Article 84 EPC.

IV. Appeal procedure

The appellant presented sets of claims according to a main and three auxiliary requests with the appeal and requested grant of a patent based thereupon.

In a communication dealing with matters, some of which were raised for the first time in the appeal proceedings, the appeal board informed the appellant that the position of the examining division in relation to support in the sense of Article 84 EPC seemed rather dubious. Thus, the board could consider deciding only in respect of support in the sense of Article 84 EPC and remitting the case to the first instance for continuation of the examination of remaining matters. Alternatively, if a complete and correct set of application papers dealing with all the matters in issue were presented the board could consider resolving the entire case itself.

V. Case of the Appellant

Requests

A decision in relation only to the Article 84 objection (and any other matters the board wishes to address which do not involve a loss of instance).

Remittal to the examining division for examination to be continued.

Oral proceedings if the board is minded to reject the main request of the appellant.

Claims

The independent claims upon which the main request is based are worded as follows:

"1. Bellows for optical equipment comprising a tubular concertina structure (14) of adjustable axial length having pleats (59) with folds (58) between axially adjacent pleats which act as hinges permitting adjustment of the axial length, at least some of the pleats being of laminated construction, a first layer (66 or 68) of said construction being of flexible light-inhibiting material and characterised in that a further layer (70) is of load-bearing material which acts as a plastic hinge at the folds, and which upon axial adjustment of the bellows maintains the bellows in its adjusted configuration without external support or restraint.

2. Bellows for optical equipment comprising a tubular concertina structure (14) of adjustable axial length having pleats (59) with folds (58) between axially adjacent pleats which act as hinges permitting adjustment of the axial length, at least some of the pleats being of laminated construction, a first layer (66 or 68) of said construction being of flexible light-inhibiting material and characterised in that a further layer (70) is of load-bearing material which is continuous along the length of the folds and acts as a plastic hinge at the folds, and which upon axial adjustment of the bellows maintains the bellows in its adjusted configuration without external support or restraint.



8. A blank for erection into an axially adjustable bellows, being of laminated material, comprising a first layer of flexible light-inhibiting material (66 or 68), and characterised by a further layer of plastically deformable load bearing material (70) adherent thereto, the laminated material retaining its deformed shape upon deformation and being configured to form folds, the folds enabling erection of the laminated material into a bellows, in which the folds form hinges between pleats of the bellows, and in which the load bearing material acts as a plastic hinge at the folds to permit adjustment of the axial length of the bellows, and upon said axial adjustment maintains the bellows in its adjusted configuration without external support or restraint."

It is not necessary to give the wording of the claims according to the auxiliary requests as it can be seen from point 3 of the reasons for the decision given below that these requests are not considered.

### **Reasons for the Decision**

1. The appeal complies with the provisions mentioned in Rule 65(1) EPC and is therefore admissible.
2. *Main request*
  - 2.1 The reason given by the examining division for refusing the application was in essence that, for lack of support by the description, the requirements of Article 84 EPC are not complied with, without specification in the claims of features (i) and (ii)

referred to in Section II of the Facts above, including, in particular, stiffness of the load bearing material in relation to 75 micron aluminium sheets.

2.2 It seems the examining division accepted that the claimed wording was supported by the description, but that in the absence of the specification of features it had identified, its underlying concern was that the claims included embodiments, with a further layer acting as a plastic hinge, yet not able to maintain the bellows in its adjusted configuration without external support or restraint. Since this possibility is contrary to and thus excluded by the claimed wording, the board considers this concern prima facie unfounded.

2.3 A choice of not only of material but also of thickness is made by the person skilled in the art so as to maintain the bellows in its adjusted configuration without external support or restraint. Such materials and their compliance with the function of maintaining the bellows in its adjusted configuration are, as the examining division established, verified by tests known to persons skilled in the art and thus not isolated from the support function. Whether or not other support measures might also be present is simply not relevant to the bellows as defined in the claims. The board does not therefore see anything in the description pertaining to the numerical value given for stiffness of what is after all just an example, which would oblige the appellant to include it in the independent claims. On the contrary, it is possible to imagine that the particular value would be inappropriate for some bellows and some materials contemplated. The board thus

reached the conclusion that the objection of the examining division is unfounded in substance.

- 2.4 The board does not consider its approach to be inconsistent with any of the decisions referred to by the examining division. Since features (i) and (ii) specified by the examining division relate just to an example, there is no reason to think they correspond to the fuel additives discussed in decision T 409/91. The prior art considered in introduction of the patent application includes bellows which are specified as not self supporting and carried between a lens at one end and a camera body at the other. Large format cameras are mentioned, where a support structure has been necessary to support the bellows and prevent it sagging. In the present case, it can be positively verified by tests known to persons skilled in the art whether the further layer meets the functional requirements of the independent claims, there is thus no doubt about whether the technical effect is achieved and consequently no contradiction with decision T 939/92. It also follows from this situation that the requirements of Guidelines Section C III, 4.7 and 6.5 in relation to results to be achieved and functional features are satisfied and that thus no contradiction with decision T 68/85 exists.

- 2.5 Since the reasoning used in refusing the application in relation to obliging the appellant in the context of support under Article 84 EPC to insert features referred to in point 2.1 above into the independent claims has not convinced the board, it is necessary to set the decision under appeal aside. Such action in relation to this point only, does not, of course,

restrict consideration by the first instance of other matters during further examination of the application.

3. *Auxiliary requests*

The board is not in a position to take a decision concerning the subject matter of the claims according to the auxiliary requests unless necessary after deciding on the main or higher order requests. In the present case, examination of the claims according to the main request cannot be completed without a loss of instance for certain matters, to which loss of instance the appellant does not agree. Thus, no consideration of the auxiliary requests is given in this decision.

4. *Oral proceedings*

Since oral proceedings were requested only in the case of intended rejection of the main request, which is not the case in the present interlocutory decision, such proceedings are unnecessary.

**Order**

**For these reasons it is decided that:**

1. The decision under appeal is set aside.
2. The case is remitted to the first instance for continuation of the examination.

The Registrar:

The Chairman

P. Martorana

A. G. Klein